SIEMENS

MAMMOMAT Novation DR

SP

Installation and Startup

System with WH AWS

Camera Information for VA11

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HCC information for women's health, acquisition workstation

General information

Acronyms and abbreviations

AE title	Application entity title
BU	Business Unit (modality)
DCS	DICOM Conformance Statement
DICOM	Digital Imaging and Communication in Medicine
HW/SW	Hardware/Software
HCC	Hardcopy Camera
LAN	Local Area Network
LUT	Look Up Table
OEM	Original Equipment Manufacturer
SCP	Service Class Provider
SCU	Service Class User
TCP/IP	Transfer Control Protocol/Internet Protocol

Block diagram women's health, acquisition workstation

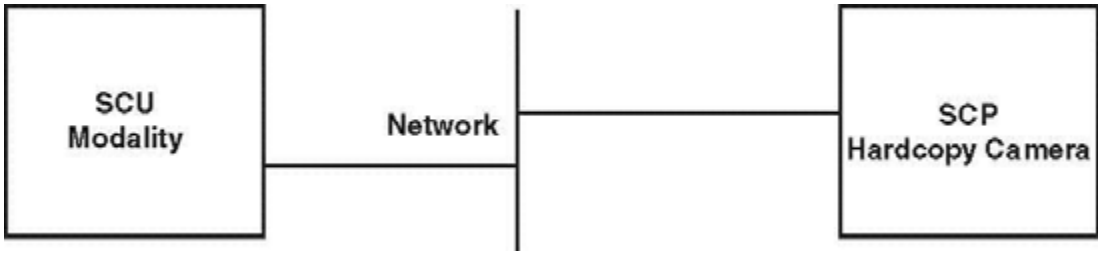


Fig. 1:

System references

- See Siemens Medical Solutions Intranet UPTIME Services
- Product-specific technical documentation

Hardware components

- Cable, straight-through, S/UTP RJ45 (5m; part no.: 30 74 515)
- Cable, straight-through, S/UTP RJ45 (30m; part no.: 30 74 523)

or

- See Siemens Medical Solutions Intranet UPTIME Services

- Product-specific technical documentation

Restrictions and known effects

NOTE	**The DICOM camera parameter for “color appearance” has to be set to a “12-bit grayscale” in the DICOM print device menu step 3. (Filming properties)**
NOTE	**The DICOM camera parameter for “Max Density” and “Overall maximum density” has to be set to 3.50. (Exception: Agfa Drystar 4500 has to be set to 3.00)**
NOTE	**The DICOM camera parameter for “Interpolation for printing” has to be set to “Bilinear”.**
NOTE	**Sending film sizes that are not available at the customer site can cause problems at the camera site. In this case, it is recommended to delete these film sizes for the portrait and landscape format.**
NOTE	**The Grayscale Standard Display Function (GSDF) is supported for printing (presentation LUT) but is currently not supported for the monitor. Therefore, the DICOM presentation LUT is not released.**
NOTE	**The "use of the presentation LUT" must be disabled in the local service for LUT file configuration.**
NOTE	**Print the SMPTE test image to check the modality and camera setting according the description and verify the results with the values in the reference value table for max. density 3.50.**
NOTE	**The DICOM basic color print function is not released.**
NOTE	**The segment lines for different layouts around images may occur with different intensities or may disappear. The segment lines can be switched off completely in the following way.** **Navigate to the film task bar and select segment lines “No” (in task bar Options/Configuration/Filming layout) and confirm the changes with apply/OK).**

NOTE

The density values for the image quality were measured with a calibrated densitometer X-Rite 301. The measurement result from other densitometers may differ from the absolute density values as described in the tables.

Errors and warning messages

Only certain errors and warnings have been tested for each hardcopy camera.

These errors and warnings are described in the corresponding specific camera information.

Scope of applicability

Modality/system

Device type	Modality (SCU)
Product name	Women's health, Acquisition Workstation
Modality host name/console	WH AWS
HW revision	Pent.4 CPU, 1700MHz,
Manufacturer	Siemens Medical Solutions
SW revision	VA10A build 30 P12 (syngo-based VX46A) VA11A Build 54 P60 (syngo VD20O SL140P351)
Conformance statement	Syngo VD20J, Release 16.0

Hardcopy cameras

This table includes all hardcopy cameras using DICOM basic print.

Manufacturer	HCC name	Software validity			
		VA10A	VA11A/B	V....	V....
AGFA	**Drystar 4500**	X	N/A		
AGFA	**Drystar 4500M**	X	**X**		
FUJI	**Drypix 7000/5000**	X	**X**		
FUJI	**FM DPL/FN-PS 551**	X	**X**		
KODAK	**DryView 8900**	X	**X**		
KODAK	**DryView 8610/ PACS Link MIM 200**	X	**N/A**		
KONICA Minolta	DryPro 793	N/A	N/A		

X = Hardcopy camera is released

N/A = Hardcopy camera is not released

NOTE **The use of non-released combinations of hardcopy cameras and BU products is prohibited and does not meet the requirements specified.**

DICOM associations

A DICOM association is a network connection between 2 DICOM applications. The association is established and released by the SCU and may be aborted by the SCU or SCP. The maximum number of associations for each HCC device is defined in the DCS. The maximum number of associations depends on the configuration and may be expanded by increasing the number of gateways connected to the printer device.

In a DICOM network environment, there are two possibilities for connecting a modality (SCU) to an HCC device (SCP).

Case 1: The association is always opened. Assuming that this behavior applies to all modalities (connected to the same HCC device), the number of modalities has to be equal to or less than the maximum number of supported associations.

Case 2: The association is opened (and closed) on demand. Assuming that this behavior applies to all modalities (connected to the same HCC device), the number of modalities may be greater than the maximum number of supported associations. This number will be shared by the modalities.

For each SIEMENS modality, the association open-close behavior is fixed. For other non-SIEMENS modalities, this behavior is unknown. Under optimal circumstances, the number of modalities is equal to or less than the maximum number of supported associations.

The association is always opened by the SCU (case 1)

If the associations are always opened by the SCU for each configured HCC device, the association is reserved for this SCU only.

If the maximum number of associations = 1 and another modality never releases the association, this HCC device is always reserved for this modality.

The association is opened and closed on demand (case 2)

The associations are opened (and closed) by the SCU on demand for each configured HCC device with the product name.

Special cases (compare also to case 1):

If the number of modalities configured in the HCC device is greater than the maximum number of supported associations, printing will not work for some modalities. Printing functionality depends on the access time and the release mechanism of each connected modality (e.g., the maximum number of supported associations = 1, the number of modalities = 2. During the access time of the first modality, the access of the second modality is denied and connectivity fails and vice versa).

If other modalities do not release the associations, the shareable number of associations decreases.

Modality

Hardware and software prerequisites

All hardware and software prerequisites are included with the <modality> product delivery volume.

Parameters

For software configuration, HCC data/parameters and possible additional film matrix properties (syngo: filming properties) are required.

Modality data and configuration parameters

Properties	Example	Supplier
Port number	104	Default entry
AE title	PR_"Hostname"	Default entry
TCP/IP address	xxx.x.x.xxx	Network administrator

HCC data and configuration parameters[1]

1 The values of these parameters are part of the specific HCC information

Example: Kodak DryView 8300

Application entity Properties	Display	Supplier
AE title	K8300	Network administrator or HCC service
Port number	5040	HCC service

HC device/ general settings		Display	Supplier
Type		DICOM printer	Default entry
Class (printer spec file name)		kodak8300	Default entry
DICOM node		dv8300	Default entry

Filming properties		Display	Supplier
Hold printed film jobs		10	Default entry
Min. density		20	Default entry
Pixel size [1/1000 mm]		85.0 x 85.0	Default entry
Film sheet formats, Portrait	Number of pixels [columns x rows]	8"x10" 2256x2676	Default entry
Film sheet formats, Landscape	Number of pixels [columns x rows]	8"x10" 2736x2136	Default entry
Medium type		Blue film	Default entry
Film destination		Processor	Default entry
Color appearance		Grayscale 12 bit	Default entry
Background		Black	Default entry
Transformation		No magnification	Default entry

Film matrix properties

The settings for filming properties depend on the class selected (DICOM camera). A pull-down menu for DICOM-class cameras is provided. Select your DICOM camera type. A specific file for this type is loaded and the "filming properties" are shown. Changing the "filming properties" will affect the camera site and may not meet the requirements. Do not make any changes, unless otherwise instructed.

NOTE

Filming properties are "pixel size" and "media sheet size"; this data is required for image scaling and cannot be changed.

Software configuration

- The following information is required:
  - Host name
  - TCP/IP address
  - Application entity title
  - Port number of the DICOM remote host (DICOM laser camera)

The AE title, port number and camera type must be provided by the local camera service.

Syngo software configuration and laser camera

1. Select options in the menu line
2. Click to local service
   ➪ The Siemens Service Software Authentication platform appears

3. Enter the password and click ”OK”
   ➪ The Syngo Service Software Home Menu Platform appears
4. Click ”configuration”
   ➪ The Local Service Configuration List of system options appears
5. Click DICOM ”General”
6. Click ”>”
   ➪ The local Application Entity Title platform appears
7. Provide the Local Camera Service with the information in the field ”Print (SCU) AE Title PR_”Hostname”
8. Click ”Save”; ”>”; ”Finish”
   ➪ The Configuration Setup platform appears
9. Click Local Host ”TCP/IP LAN”
   ➪ The local Service Configuration TCP/IP LAN Platform appears
10. Provide the Local Camera Service with the information in the field ”IP address” (scroll down menu for IP address but do not select it)
11. Click ”Finish”
    ➪ The Configuration Setup platform appears
12. Select DICOM Print Devices
    ➪ The Local Service Hardcopy Device platform appears
13. Enter the host name and TCP/IP address of the laser camera (provided by the camera manufacturer)
14. Click ”Test” to test IP communication (ping)
15. Click ”Save”
    ➪ Host properties successfully saved
16. Click ”OK”
17. Click ”>”
    ➪ The General Note Properties Dialog Platform appears
18. In Logical Name: Enter the logical name of the laser camera
19. Select the Host and choose the host name previously defined in the Hardcopy device platform
20. In Application Entity Properties: Enter the AE title in the "Edit AE title" field (provided by the camera manufacturer)
21. Enter the port number (provided by the camera manufacturer)
22. Click ”Add”
23. Click ”Save”
    ➪ DICOM node properties successfully saved
24. Click ”OK”
25. Select the logical name again and click ”Verification” to test DICOM communication (mc3echo)

26. Click ">"
    ➪ The Camera Specific Parameters platform appears
27. HC device: Enter the camera name
28. General Settings: /Type: DICOM printer
29. /class: see specific HCC Information or e.g. agfadrystar3000
30. Filming Properties:
    - Hold printed film jobs:
      (default is 10; maximum 10 films can be printed again)
    - Min density:
      (default is 20; can be changed in increments of 0.1)
    - Pixel Size: (changes not allowed)
    - Film Sheet Formats Portrait/Landscape:
      (Do not modify and/or add film sizes, select and delete film sizes that are not available on-site)
    - Medium type:
      blue film; clear film; paper (default value depends on the class used)
    - Film destination:
      processor; magazine (default value depends on the class used)
    - Color appearance:
      Color 24 bit; Grayscale 8 bit; Grayscale 12 bit (default value is grayscale 8 bit)
      select “Grayscale 12 bit”
    - Background :
      black or white (default value is black)
    - Transformation:
      replicate; bilinear; cubic; no magnification (default value is no magnification)
31. Click "save"
    ➪ Caution: Please wait for the message "device properties successfully saved"
32. Click ”OK”
33. Click ”Finish”
    ➪ The Configuration Setup platform appears
34. Jump over by clicking ”>” and select the next DICOM ”HC Overview” marked
35. Click ”Finish”
    ➪ The Configuration Setup platform appears
36. Click LUT files
    ➪ The LUT platform appears.

Image type	Correction LUT	Max. density
DXMG Image	Corr16b-bspline	**3.50** or
DXMG Image	MG1_5bCorr-bspline (recommended LUT)	**3.50**

NOTE	**If new LUT files for one or more modalities are available on a removable medium, e.g., floppy or CD, these files can be selected on the source drive and copied to the dependent LUT directories on the local host. LUT files that are not needed can be removed from the LUT directories on the local host.**

37. Click ">"

    ➪ Usage of Presentation LUT platform appears

38. Select disable

39. Modifications are necessary for additional image impressions only.

40. Overall Maximum Density:

    - 3.00 (default)

NOTE	**The parameter acts as a LUT scaling relative to the setting of max. density of each LUT (and acts also on the density values digitally transfered to the HCC). LUT will be down-scaled if this parameter is set to a value greater than the LUT / max. density. Parameter value has no impact on the LUTs which have max. density values that are the same. Parameter value less than one LUT / max. density setting is not defined. (Please note : the measurement of optical density requires the value 3.50 (3.00) for LUT / max. density as well as for overall max. density).**

41. Interpolation for printing: (changes not allowed)

    - **Bilinear** (default)
    - Replicate
    - Cubic #Smoothing Type 0, 2, 3, 4 concerns cubic mode only

42. When changes are made, click "Save"

43. Click "finish"

44. Click "Home"; the system automatically restarts the application

NOTE	**This may take some time. Confirm warnings with "OK."**

Image quality and optical density check

General image quality information (LUT)

Only the standard LUT files are loaded. For importing/removing additional/unnecessary LUT files (see the ”Additional/unnecessary LUT files” section).

The image data from the modality to the HCC is transformed/corrected by the LUTs, once in the modality and once in the HCC; thus, the LUT has to be set on both sides:

- See Siemens Medical Solutions Intranet UPTIME Services
- Product-specific technical documentation

Prerequisite correction LUT setting for WH AWS

Modality	Image type	Correction LUT	Max. density
WH AWS	DXMG Image	Corr16b-bspline	3.50[1] or
WH AWS	DXMG Image	MG1_5bCorr-bspline (recommended LUT)	3.50[1]
HCC	See specific camera information "DICOM printer settings". Settings are made by the HCC Service; **"LINEAR LUT"**		

1. if max. density 3.50 is not supported use max. density 3.00 e.g. Agfa Drystar 4500

Density verification

There are two possibilities for checking the LUT via the film density:

The modality is configured to a specific correction LUT and the HCC is configured to linear curves, or the modality is configured to a linear LUT and the HCC is configured to linear curves.

Density verification for WH AWS

Check no.	Verification for	Modality adjustment			Reference value
	WH AWS	Image type	LUT	Max. density	
1	Desired density	DXMG Image	Corr16b-bspline	3.50 (3.00)[1]	See table for Corr16b-bspline
1	Desired density	DXMG Image	MG1_5bCorr-bspline	3.50 (3.00)[1]	See table for MG1_5bCorr-bspline
2	HCC linearity	DXMGImage	linear	3.50 (3.00)[1]	See table for linear LUT

1. if max. density 3.50 is not supported use max. density 3.00 e.g. Agfa Drystar 4500

These two checks are equivalent; checking the “specified density” is sufficient.

Checking the “HCC linearity” may be necessary if the desired density verification (1) shows deviations and the HCC setting needs to be changed.

NOTE

Even if the HCC Service does not require a test image of the modality for the HCC setting, it is easier to check this setting - and possibly further HCC corrections - with the HCC linearity verification (2) than with the desired density verification (1). Only the HCC linearity LUT is effective; a graphical display would only show the current HCC behavior, which could be helpful for the HCC Service.

Density values

- Measure the density values in 11 gray levels in the SMPTE test image (Fig. 2 / p. 16) (for each film size).

  W:1024; C:512;

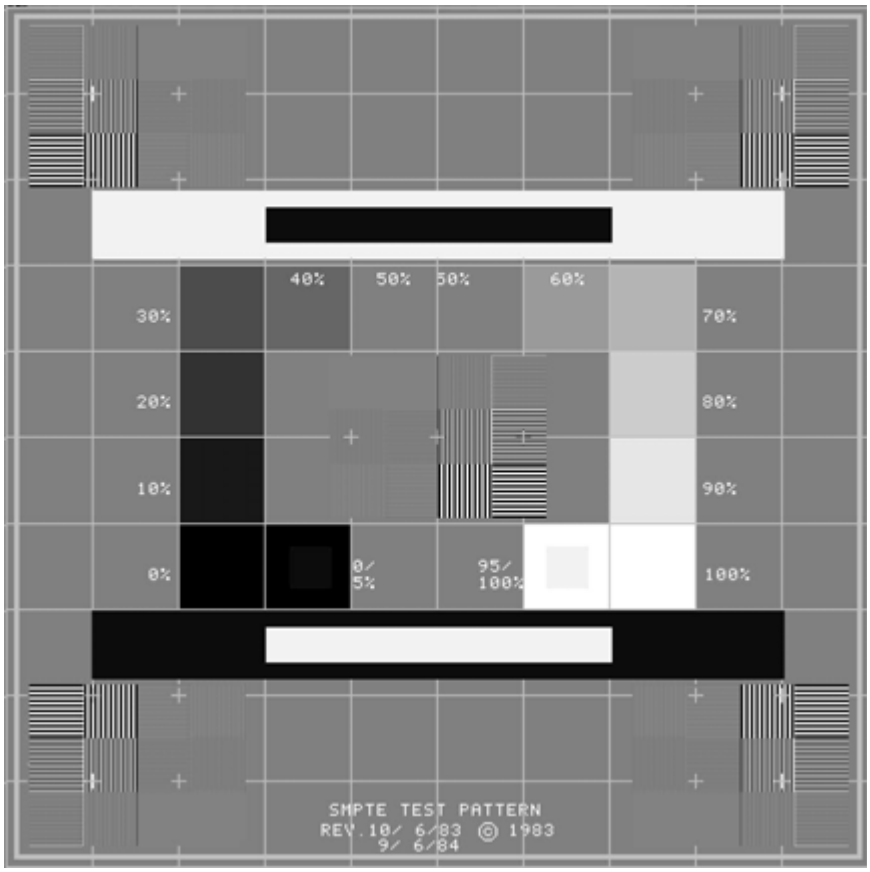


Fig. 2: SMPTE_(1k or 4k)_.....BMP

Tab. 1 Reference value for max. density 3.00

Step	Corr16b-bspline (LUT)			Linear LUT		
	Ref. LUT	Maximum density	Minimum density	Ref. LUT	Maximum density	Minimum density
1	0.20	0.23	0.17	0.20	0.23	0.17
2	0.31	0.35	0.27	0.47	0.51	0.44
3	0.42	0.47	0.37	0.76	0.80	0.72
4	0.56	0.62	0.50	1.03	1.09	0.98
5	0.73	0.79	0.67	1.32	1.38	1.26
6	0.93	1.00	0.86	1.59	1.66	1.53
7	1.15	1.23	1.07	1.88	1.95	1.81
8	1.43	1.51	1.35	2.17	2.24	2.09
9	1.82	1.91	1.73	2.45	2.54	2.36
10	2.30	2.40	2.20	2.73	2.82	2.63
11	3.00	3.10	2.90	3.00	3.10	2.90

Tab. 2 Reference value for max. density 3.50

Step	Corr16b-bspline(LUT)			Linear LUT		
	Ref. LUT	Maximum density	Minimum density	Ref. LUT	Maximum density	Minimum density
1	0.20	0.23	0.17	0.20	0.23	0.17
2	0.34	0.38	0.30	0.52	0.56	0.49
3	0.47	0.51	0.43	0.86	0.90	0.82
4	0.64	0.69	0.59	1.18	1.23	1.13
5	0.81	0.87	0.75	1.52	1.58	1.46
6	1.05	1.12	0.99	1.84	1.91	1.78
7	1.31	1.38	1.24	2.18	2.25	2.11
8	1.66	1.74	1.58	2.52	2.60	2.44
9	2.10	2.19	2.01	2.85	2.94	2.77
10	2.68	2.77	2.59	3.18	3.27	3.08
11	3.50	3.60	3.40	3.50	3.60	3.40

Tab. 3 Reference value for MG1_5bCorr-bspline (LUT)

Step	MG1_5bCorr-bspline (LUT)		
	Ref. LUT	Maximum density	Minimum density
1	0.20	0.23	0.17
2	0.44	0.48	0.40
3	0.68	0.72	0.64
4	0.94	0.99	0.89
5	1.18	1.24	1.12
6	1.45	1.52	1.39
7	1.73	1.80	1.66
8	2.01	2.09	1.93
9	2.32	2.41	2.23
10	2.73	2.82	2.64
11	3.50	3.60	3.40

Reference film

Reference film

To verify the required image quality, create a reference film and compare the measured density values from the film to the density values in the table above.

Refer to

- Siemens Medical Solutions Intranet UPTIME Services
- Product-specific technical documentation

or follow the short description below.

Reference film with technical images

To verify the **desired** LUT adjustment, follow this procedure:

Prerequisite configuration for **desired LUT adjustment** (default setting)

Modality	Image type	Correction LUT	Max. density
WH AWS	DXMG Image	Corr16b-bspline	3.50 (3.00)[1]or
WH AWS	DXMG Image	MG1_5bCorr-bspline **(recommended LUT)**	3.50 (3.00)[1]
HCC	See specific camera information "DICOM printer settings". Setting is performed by the HCC Service; **"LINEAR LUT"**		

1. if max. density 3.50 is not supported use max. density 3.00 e.g. Agfa Drystar 4500

Prerequisite configuration for **linear LUT adjustment**.

Modality	Image type	Correction LUT	Max. density
WHAWS	DXMGImage	Linear or nothing selected	3.50 (3.00)[1]
HCC	See specific camera information "DICOM printer settings". Setting is performed by the HCC Service; **"LINEAR LUT"**		

1. if max. density 3.50 is not supported use max. density 3.00 e.g. Agfa Drystar 4500

1. The layout is configurable in option/configuration/filming layout
2. 1 column, 1 row, normal image polarity, Mammo-LUT (CR curve), one technical film with SMPTE Patient: image 1 (SMPTE) W1024-C511

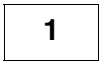
   / image 5002, W1024-C511, two medical films with clinical Patient: Image Processing 2, image 3 W566-C1429 / image 4, W582-C1452, trim = on, Max.Density=3.5 o.d. (if not supported use 3.0 instead).

3. Select the "Viewing" task card, select Patient Browser, navigate to the "Service Images" folder and view the test images:

   Use SMPTE test images (technical image) without text and print the film sheet.

4. Measure SMPTE test image (Fig. 2 / p. 16) and verify the measured density values with the "Reference Density values" using Tab1,Tab2 or Tab3.

   Segment layout:



Segment	Image	Window	Center
1	SMPTE test image	1024	511

5. Repeat this procedure with the **linear** LUT adjustment

Description of correction LUT files

Description of correction LUT files for VA11A

Correction LUT	LUT files with $D_{min.}$ 0.2 and $D_{max.}$ 3.00 or 3.50
Linear or nothing selected	Linear LUT (to check the linear adjustment of the HCC)
cr	Standard LUT; default for for all Hardcopy Cameras; max. density 3.00 - 3.50
Corr16b-bspline	12 bit binary CR-LUT; max. density 3.00 - 3.50

Description of correction LUT files for VA11B

Correction LUT	LUT files with $D_{min.}$ 0.2 and $D_{max.}$ 3.00 or 3.50
Linear or nothing selected	Linear LUT
cr	Standard LUT; default for for all Hardcopy Cameras; max. density 3.00 - 3.50
Corr16b-bspline	12 bit binary CR-LUT; max. density 3.00 - 3.50
MG1_1bCorr-bspline	12 bit binary optimized-LUT; for max. density 3.50 favorable working point is density value **1.1**; (for S-IP)
MG1_3Corr-bspline	12 bit binary optimized-LUT; for max. density 3.50 favorable working point is density value **1.3**;

Correction LUT	LUT files with $D_{min.}$ 0.2 and $D_{max.}$ 3.00 or 3.50
MG1_3bCorr-bspline	12 bit binary optimized-LUT; for max. density 3.50 favorable working point is density value **1.3**; in dark area more contrast than in MG1_3Corr-bspline
MG1_5Corr-bspline	12 bit binary optimized-LUT; for max. density 3.50 favorable working point is density value **1.5**;
MG1_5bCorr-bspline	12 bit binary optimized-LUT; for max. density 3.50 favorable working point is density value **1.5**; in dark area more contrast than in MG1_5Corr-bspline **(recommended mammography LUT)**
MG1_6Corr-bspline	12 bit binary optimized-LUT; for max. density 3.50 favorable working point is density value **1.6**;
MG1_6bCorr-bspline	12 bit binary optimized-LUT; for max. density 3.50 favorable working point is density value **1.6**; in dark area more contrast than in MG1_6Corr-bspline

Additional and unnecessary LUT files

If new released LUT files are available on a removable medium (e.g., floppy or CD), these files may be selected on the source drive and copied to the dependent LUT directories on the local system. Unnecessary LUT files may be removed from LUT directories on the local system.

Importing LUT files

1. In the local service configuration platform, select LUT files
2. Select the (source) drive and the path where the appropriate LUT files are located
3. Select the destination LUT directory (correction LUT directory) which depends on the image type (DXMGImage).
4. Pressing the copy button transfers the selected LUT file to DXMGImage type.
5. Confirm the message "files successfully copied" by clicking "OK"

Removing LUT files

Unnecessary LUT files can be removed from LUT directories on the local host by selecting the appropriate LUT file and clicking the ’remove’ button.

- Click ">"

Real size scaling

N/A

Agfa Drystar 4500M

General information

Block diagram

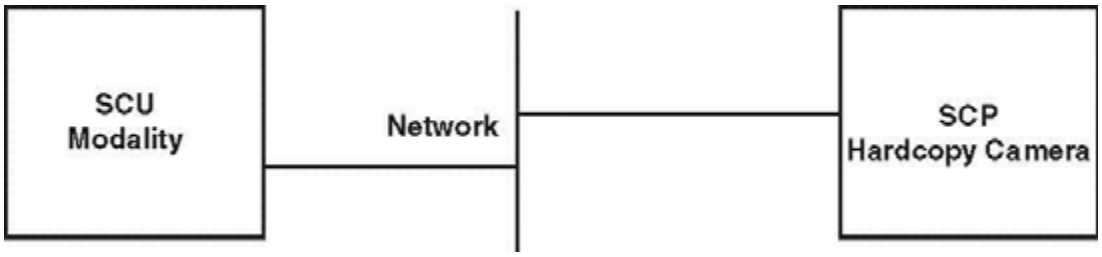


Fig. 3:

Available film sizes

Application		Status	Film type	Medium type
14" x 17"	Portrait	N/A	N/A	N/A
	Landscape	N/A	N/A	N/A
14" x 14"	Portrait	N/A	N/A	N/A
	Landscape	N/A	N/A	N/A
11" x 14"	Portrait	N/A	N/A	N/A
	Landscape	N/A	N/A	N/A
10” x12”	Portrait	Yes	DRYSTAR MAMMO	Blue-based
	Landscape	Yes	DRYSTAR MAMMO	Blue-based
8" x 10"	Portrait	Yes	DRYSTAR MAMMO	Blue-based
	Landscape	Yes	DRYSTAR MAMMO	Blue-based
Others		N/A	N/A	N/A

Performance and Connection

Associations

Maximum number of associations supported: 11

Performance

A film job, from when the GO button is pressed until the film is taken out, takes the following time: The optimum connection (point to point) was used.

Time	Around 215 sec

Restrictions

NOTE **For HCC-independent restrictions, refer to (Restrictions and known effects / p. 6).**

NOTE **Standard EN55011, radiated emission, is only supported as class A (hospital use).**

NOTE **The background command does not work properly. The background is always white.**

NOTE **For film size 8INX10IN portrait and landscape orientation, the image is not completely visible. The corners are not printed.**

NOTE **No WARNINGS will be sent for the "Conformance level 0" setting.**

SCU/modality software configuration

Application entity Properties	Display	Changes allowed
AE title	DRY4500M	Yes
Port number	104	No

HC device/ general settings		Display	Changes allowed
Type		DICOM printer	No
Class (Printer spec file name)		agfadrystar4500M	No
DICOM node		dry4500m	Yes

Filming properties		Display	Changes allowed
Hold printed film jobs		10	Yes
Min. density		20	No
Pixel size [1/1000 mm]		50 x 50	No
Film sheet formats, Portrait	Number of pixels [columns x rows]	8"x10" 3828x4958 10"x12" 4892x5810	In “define new” Do not modify/add Select only Delete only
Film sheet formats, Landscape	Number of pixels [columns x rows]	8"x10" 4958x3828 10"x12" 5810x4892	
Medium type		Blue film	Yes
Film destination		Processor	No
Color appearance		Grayscale 12 bit	No
Background		Black	Yes
Transformation		No magnification	No

NOTE

Do not modify and/or add film sizes.

Do not modify pixel sizes.

Delete film sizes that are not available at the customer site.

SCP/hardcopy camera configuration (provided by OEM)

Identification

Device type:	DICOM print server/printer
Device name:	DRYSTAR 4500M
Manufacturer:	AGFA
SW revision:	V2.00-C1
Physical interface:	Ethernet, 10/100 base T/Tx, RJ45
Network protocol:	TCP/IP
DICOM conformance statement:	Rev.1.4, Doc.No. 000584

Image memory:	Part of 128 MB - Main Memory
Hard disk:	4 GB
Number of inputs:	1 Network
Number of outputs:	N/A
Number of operating panels:	1 built-in operating panel

Printer settings

Parameter name	Setting
Calling AE title	AWS2
Number of copies	1
Print priority	Low
Polarity	Normal
Film orientation	Portrait
Trim	No
Film size ID	Empty
Medium type	Empty
Print even if film size ID/medium type is not supported	**No**
Kernel	Custom: Interpolation type cubic high res., smoothing factor - 2.5
Magnification	Magn: Max.
Pixel size	1.0 / 1.0
Perception LUT	**Linear**
Kanamori-like value	0
Custom value	Empty
Illumination (cd/m^2)	2000
Reflected ambient light (cd/m2)	10
Border density (OD x 100)	Black
Empty image density (OD x 100)	Black
Minimum density	Empty
Maximum density	Site/370
Annotation 1	Edit custom: None
Annotation 2	Edit custom: None

Parameter name	Setting
Window (%)	Empty
Level (%)	Empty
Image orientation	R0
Conformance level	**0**
N-event enabled	**Off**
Mammo modality	**Site: Yes**
Association timeout(s)	0
Image timeout(s)	0
ALLOW IMPLICIT VR LITTLE ENDIAN	Yes
ALLOW EXPLICIT VR LITTLE ENDIAN	Yes
ALLOW EXPLICIT BIG ENDIAN	Yes
Resolution	508
Supported SOP classes	Edit
Early processing allowed	YES

Error/warning messages

No errors or warnings have been tested.

Image quality and optical density

No specific parameter available.

Real size scaling

N/A

Agfa Drystar 4500

General Information

Block Diagram

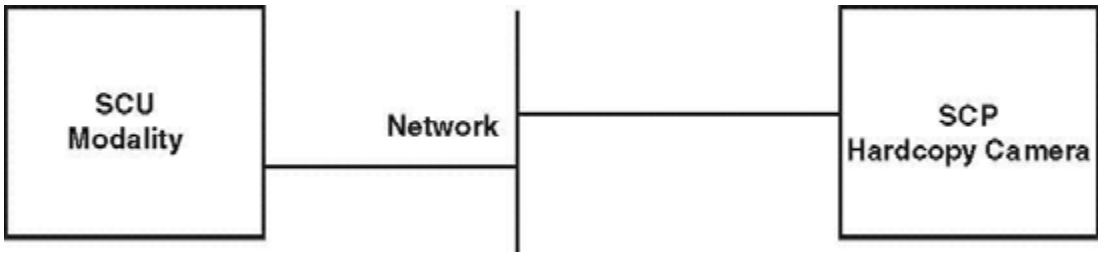


Fig. 4:

Available Film Sizes

Application		Status	Film Type	Medium Type
14" x 17"	Portrait	N/A	N/A	N/A
	Landscape	N/A	N/A	N/A
14" x 14"	Portrait	N/A	N/A	N/A
	Landscape	N/A	N/A	N/A
11" x 14"	Portrait	N/A	N/A	N/A
	Landscape	N/A	N/A	N/A
10” x 12”	Portrait	Yes	DT1B	blue-based
	Landscape	Yes	DT1B	Blue-based
8" x 10"	Portrait	Yes	DT1B	blue-based
	Landscape	Yes	DT1B	blue-based
Others		N/A	N/A	N/A

Restrictions

NOTE

For HCC-independent restrictions, refer to (Restrictions and known effects / p. 6).

NOTE

Maximum number of associations supported: 10

NOTE

The background command does not work properly. The background is always white.

NOTE	**The maximum density of 3.5 is not possible for this printer. Instead 3.0 is applicable.**

SCU / Modality Software Configuration

Application Entity Properties	**Display**	**Changes allowed**
AE Title	DRY4500	Yes
Port Number	104	No

HC Device / General Settings		**Display**	**Changes allowed**
Type		DICOM printer	No
Class (Printer spec file name)		agfadrystar4500	No
DICOM Node		DRY4500	Yes

Filming Properties		**Display**	**Changes allowed**
Hold printed Film Jobs		10	Yes
Min. Density		20	No
Pixel Size [1/1000 mm]		50 x 50	No
Film Sheet Formats, Portrait	Number of Pixels [columns x rows]	8" x 10" 3728x4672 10" x 12" 4672x5760	In “define new” Do not modify/add Select only Delete only
Film Sheet Formats, Landscape	Number of Pixels [columns x rows]	8" x 10" 4672x3728 10" x 12" 5760x4672	
Medium Type		blue film	Yes
Film Destination		processor	No
Color Appearance		Grayscale 12 bit	No

Filming Properties		Display	Changes allowed
Background		Black	Yes
Transformation		No Magnification	No

NOTE

Do not modify and/or add film sizes.

Do not modify pixel sizes.

Delete film sizes that are not available at the customer site.

SCP / Hardcopy Camera Configuration (provided by OEM)

Identification

Device type:	DICOM Print Server / Printer
Device Name:	DRYSTAR 4500
Manufacturer:	AGFA
SW Revision:	1.95C
Physical Interface:	Twisted pair
Network protocol:	TCP/IP - DICOM
DICOM Conformance Statement:	Drystar 4500, Rev.1.3, Doc.No. 000584
Image Memory:	Part of 128 MB - RAM
Hard disk:	4 GB
Number of Inputs:	1
Number of Outputs:	N/A
Number of Operating Panels:	1

Printer Settings

Parameter Name	Setting
Calling AE title	AWS2
Number of Copies	1
Print Priority	Low
Polarity	Normal
Film Orientation	Portrait
Trim	No

Parameter Name	Setting
Film Size ID	Empty
Medium Type	Empty
Print even if Film Size ID / Medium Type not supported	No
Kernel	Cubic High Res - 2.5
Magnification	Magn: Max.
Pixel Size	1.0 / 1.0
Perception LUT	Linear
Kanamori-like Value	0
Custom Value	Empty
Illumination (cd/m^2)	2000
Reflected ambient Light (cd/m2)	10
Border density (OD x 100)	Black
Empty Image Density (OD x 100)	Black
Minimum Density	20
Maximum Density	300
Annotation 1	Edit custom: None
Annotation 2	Edit custom: None
Window (%)	Empty
Level (%)	Empty
Image Orientation	R0
Conformance level	0
N-Event enabled	Off
Mammo modality	Site: Yes
Association Time-out(s)	0
Image Time-out(s)	0
ALLOW IMPLICIT VR LITTLE ENDIAN	Yes
ALLOW EXPLICIT VR LITTLE ENDIAN	Yes
ALLOW EXPLICIT BIG ENDIAN	Yes
Resolution	320

Parameter Name	Setting
Supported Abstract Syntax	Basic Film Box SOP Class Basic Grey PM Meta SOP Class Basic Color PM Meta SOP Class Print Queue Management SOP Class Printer SOP class Basic Color Image Box Basic Greyscale Image Box Basic Film Session SOP Class Print Job SOP Class Presentation LUTSOP class Basic Annotation Box SOP Class Verification Service Class Print Queue Management SOP Class
Initial allocated memory size per print job (MBytes)	23

Error / Warning Messages

No errors or warnings have been tested.

Image quality and optical density

Film Type

- Released Film Type: DRYFILM DT1B

Real size scaling

N/A

Changes to previous version

Chapter	Section	Action
1	General Hardcopy Camera Information	List of Hardcopy Cameras updated. Description for image quality and optical density updated
2	Specific Hardcopy Camera Information	Chapter renamed "Hardcopy Camera Information Agfa"
3	Specific Hardcopy Camera Information	Chapter renamed "Hardcopy Camera Information Fuji"
4	Specific Hardcopy Camera Information	Chapter renamed "Hardcopy Camera Information, Kodak"

Kodak DryView 8900

General information

Block diagram

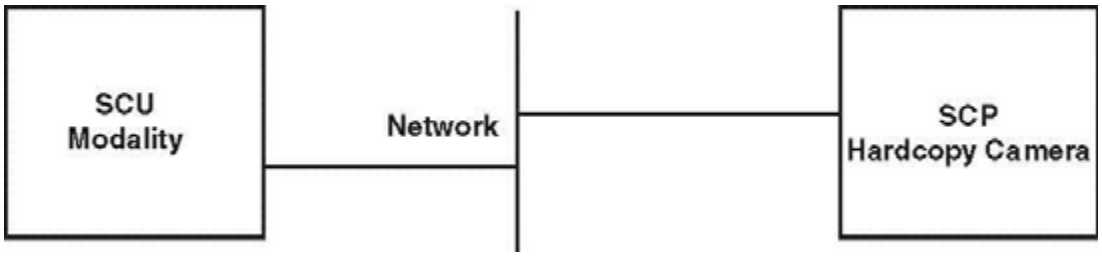


Fig. 5:

Available film sizes

Application		Status	Film Type	Medium Type
14" x 17"	Portrait	No[1]	No[1]	No[1]
	Landscape	No[1]	No[1]	No[1]
14" x 14"	Portrait	No[1]	No[1]	No[1]
	Landscape	No[1]	No[1]	No[1]
11" x 14"	Portrait	No[1]	No[1]	No[1]
	Landscape	No[1]	No[1]	No[1]
10" x 12"	Portrait	Yes	DVM	Blue-based
	Landscape	Yes	DVM	Blue-based
8" x 10"	Portrait	Yes	DVM	Blue-based
	Landscape	Yes	DVM	Blue-based
Other		N/A	N/A	N/A

1. Film size is available but not released

Performance and Connection

Associations

Maximum number of associations supported: 12

Performance

A film job, from when the GO button is pressed until the film is taken out, takes the following time: The optimum connection (point to point) was used.

Time	Around 210 sec

Restrictions

NOTE **For HCC-independent restrictions, see (Restrictions and known effects / p. 6).**

NOTE **The EN55011 standard is only class A (hospital use).**

NOTE **The Minimum Density command is not supported. The minimum density value is the value of the fog on the film.**

NOTE **An "Identification text sentence" may be visible (at one border) in the diagnostic area. Also, some edges of the diagnostic area are cut off.**

SCU/modality software configuration

Application entity Properties	Display	Changes allowed
AE title	DV8900[1]	Yes
Port number	5040	No

1. Do not use an AE title such as “NER_...”

HC device/ general settings		Display	Changes allowed
Type		DICOM printer	No
Class (Printer spec. file name)		kodak8900HiRes_smallB	No
DICOM node		DV8900	Yes

Filming properties		Display	Changes allowed
Hold printed film jobs		10	Yes
Min. density		20	Yes

Filming properties		Display	Changes allowed
Pixel size [1/1000 mm]		39.08 x 39.08	No
Film sheet formats, Portrait	Number of pixels [columns x rows]	10" x 12" 6368 x 7656 8" x 10" 5056 x 6368	In “define new” Do not modify/add Select only Delete only
Film sheet formats, Landscape	Number of pixels [columns x rows]	10" x 12" 7656 x 6368 8" x 10" 6368 x 5056	
Medium type		Blue film	Yes
Film destination		Processor	No
Color appearance		Grayscale 12 bit	No
Background		Black	Yes
Transformation		No magnification	No

NOTE

Do not modify and/or add film sizes.

Do not modify pixel sizes.

Delete film sizes not available at the customer site.

SCP/hardcopy camera configuration (provided by OEM)

Identification

Manufacturer/device type:	DICOM print server (SCP)
Device type:	Dry laser imager
Manufacturer/device name:	Kodak/DryView 8900
SW revision:	DV8900_2.11 MIM_5.6.b5
Image memory:	786 MB-RAM
Hard disk:	40 GB
Number of operating panels:	1 built in Touch Panel.
Number of inputs:	1 Network, RJ 45
Number of outputs:	N/A

Manufacturer/device type:	DICOM print server (SCP)
Physical network interface:	Ethernet 10/100 base T/Tx, STP/UTP Cat. 5
Network protocol:	TCP/IP
Manufacturer's specifications:	DICOM Conformance Statement, Release 2.0, January 28, 2004

Printer settings

Content
8900 setup: (Provided by Kodak)
➪ **On configuration, system, network:** Host Name=DV8900, IPAddr=accordingly Subnet Mask=accordingly, Gateway Addr=accordingly On Configuration, DICOM SCP, Communications: Port=5040, Association Limit=12, Source Name=DICOM **On configuration, destination:** General remarks: Log. Name=8900 Media types: Media=35x43cm, 9100x11037, 10781, any Media types: Media=35x35 cm, 9100x9087, 8831, Any Media types: Media=11"x14", 7137x9100, 8844, Any Media types: Media=10"x12", 6490x7767, 7511, Any Media types: Media=8"x10", 5167x6490, 6234, Any Formatting: Aspect Ratio Mix Page=On, Aspect Ratio Mix Row=On Formatting: Image Size Mix in Std Fmt=On, Image Size Mix Row=On Formatting: DICOM Annotation Box=On, Req. Image Size=On Formatting: Req. Size Scale=On, Req. Size Mix Page=On Formatting: Req. Size Mix Row=On, Trim=On, Formatting: True Landscape=On, Rotation=On Formatting: Minify/Crop=On, Tone Scaling on Image Basis=On Formatting: Max Img Band=7, Max Band Page=7, Max Img Cols=0 Formatting: Max Img Rows=0, Pixel Pitch=25.5910, Min Horiz Sep=4 Formatting: Min Vert Sep=4, Trim Width Enabled=4 Formatting: Trim Width Disabled=0, Maximum DMAX=3.30 **On configuration, DICOM SCP, SCP services:** Select specific modality, modify: Negotiate Presentation LUT=No, Negotiate Color Print=No **TFT/ULUT= Wrkstn2a.w87** (Always=Y) **Contrast=1**(Always=N), **Smoothing Type=5** (Always=Y), Image Dmin=0.00 (Always=N), Image Dmax=3.00 (Always=N) Polarity= Normal, (Always=N) NeventReports=No (Always=Y), Warnings=Yes Print Priority=Normal (Always=N), Border=3.99 (Always=N) **2mm Border=Yes,** Film Base=Mammo Blue Film (Always=Y) Film Size=14INx17IN (Always=N) Sorter Bin=Bin1 (Always=N), Print Date=No, Print Time=No, Page No.=No, Hosp.Name=No, Modality ID=No Annotation Override=No, Density Patch=No Image Resizing=Minify/Scale (Always=N), Text Box Location=None, Source ID=syngo

Error/warning messages

No errors or warnings have been tested.

Image quality and optical density

No specific parameter available.

Real size scaling

N/A

Kodak DryView 8610 / PACS Link MIM 200

General Information

Block Diagram

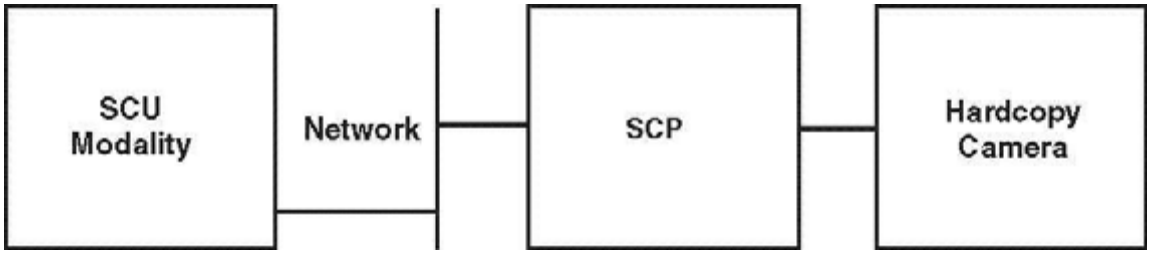


Fig. 6:

Available Film Sizes

Application		Status	Film type	Medium type
14" x 17"	Portrait	N/A	N/A	N/A
	Landscape	N/A	N/A	N/A
14" x 14"	Portrait	N/A	N/A	N/A
	Landscape	N/A	N/A	N/A
11" x 14"	Portrait	N/A	N/A	N/A
	Landscape	N/A	N/A	N/A
10" x 12"	Portrait	N/A	N/A	N/A
	Landscape	N/A	N/A	N/A
8" x 10"	Portrait	Yes	DVM	Blue-based
	Landscape	Yes	DVM	Blue-based
Others		N/A	N/A	N/A

Restrictions

NOTE **For HCC-independent restrictions, refer to (Restrictions and known effects / p. 6).**

NOTE **The minimum density command is not supported.**

NOTE **Maximum number of associations supported: 9**

NOTE	The background command does not work properly.

NOTE	Linear LUT of a max. density of 3.5 is out of tolerance.

SCU / Modality Software Configuration

Application Entity Properties	Display	Changes allowed
AE Title	DV8610[1]	Yes
Port Number	5040	No

1. Please do not use AE title such as “NER_...”

HC Device / General Settings		Display	Changes allowed
Type		DICOM printer	No
Class (Printer Spec File Name)		kodak8610	No
DICOM Node		dv8610	Yes

Filming Properties		Display	Changes allowed
Hold Printed Film Jobs		10	Yes
Min. Density		20	Yes
Pixel Size [1/1000 mm]		38.75 x 38.75	No
Film Sheet Formats, Portrait	Number of pixels [columns x rows]	8" x 10" 5024x6200	In “define new” Do not modify/add Select only Delete only
Film Sheet Formats, Landscape	Number of pixels [columns x rows]	8" x 10" 6200x5024	
Medium Type		blue film	Yes
Film Destination		processor	No
Color Appearance		Grayscale 12 bit	No
Background		Black	Yes
Transformation		No Magnification	No

NOTE

Do not modify and/or add film sizes.

Do not modify pixel sizes.

Delete film sizes that are not available at the customer site.

SCP / Hardcopy Camera Configuration (provided by OEM)

Identification

Manufacturer / Device Type:	DICOM Print Server (SCP)
Device Name:	PACS Link MIM 200
Manufacturer:	Kodak
SW Revision:	V 6.1
Physical type:	10/100 Base T/Tx
Network protocol:	TCP/IP
DICOM Conformance Statement:	Rev. G, Oct.17, 2003
Image Memory:	256 MB
Hard disk:	4 GB
Number of inputs:	1 Ethernet/RJ45
Number of outputs:	1 Copcil Board
Number of operating panels:	1

Manufacturer / Device Type:	Printer
Device Name:	DryView 8610
Manufacturer:	Kodak
SW Revision:	V 2.4
Physical type:	N/A
Network protocol:	N/A
DICOM Conformance Statement:	N/A
Image Memory:	256 MB
Hard disk:	N/A
Number of inputs:	1 control 1 data

Manufacturer / Device Type:	Printer
Number of outputs:	N/A
Number of operating panels:	1 built-in operating panel

Printer Settings

Content:	Configuration
	MIM 200 setup
	On configure, network:
	Node Name=MIM, IPAddr=accordingly Subnet Mask=accordingly, Gateway Addr=accordingly
	On configure, input, network, Add:
	Protocol=DICOM 3.0, Log.Name=DICOM, Type/Com=Keypad/COM9
	On Configure, Destination, Add, Print, Direct, Qualified, 8610, Set:

Content:	Configuration
	➪ General: Log.Name=8610 General: Database Name=8610, Model=8610, Memory 32 Media info.: Media=8inx10in, 5025x6200, 6020, Blue Image transfer: Cmd Set=952, Baud=1200, Data=8, Stop=1, Parity=Even Output params.: Pixel=12, Header/Line, Transfer=2000 KHz, Acquire=60 Supported item: Collation=On, Text=On, Tonescaling=On, Rotation=On Interpolation: NoMag=On, Bilin=On, Repl=On, CubicSpline=On Format types: Custom=On, Slide=On, Row Symmetric=On, Format types: 1, 2, 4, 6, 8, 9, 12, 15, 16, 20, 24, 30, 35=On Formatting: Aspect Ratio Mix on Page=On, Image Size Mix in Std Fmt=On Formatting: DICOM Annotation Box=On, Req.Size Scale=On Formatting: Req.Size Mix in Row=On, Trim=On Formatting: Aspect Ratio Mix in Row=On, Image Size Mix in Row=On Formatting: Req.Image Size=On, Req.Size Mix on Page=On Formatting: True Landscape=On Formatting: Max Img per Band=20, Max Band per Page=20, Max Img Col=0 Formatting: Max Img Row=0, Min Horiz Sep=2, Min Vert Sep=2 Formatting: Trim Width Enabled=2, Trim Width Disabled=0 Formatting: Pixel Pitch=25.8065 Image processing: Grayscale=On, Minify=On, Max Image Dmax=3.5 M952 usage: Min H/V Mag=0.26, Max H/V Mag=16, Min Dmax 952=2
	On configure, SCP services, select the specific modality, modify:

Content:	Configuration
	➪ Image optimization: PLUT=N, Tone Scaling=PerceptionLUT, (Always=Y), TFT/ULUT=(Gray, not selectable), (Always=N),Contrast (dry)=6, (Always=N), Modality Group=1, Conv. Group=1, Gamma Table=Linear in Density Image Dmin=0.00, (Always=N),Image Dmax=3.60, (Always=N), Smoothing Type=1, (Always=N), Image Polarity=Normal, (Always=N), Other Printer Options: N-EVENT Reports =Off, (Always=Y)Warning Status=On Annotation Elements: Capture Date=Off, Capture Time=Off, Page Number=Off, Hosp.Name=Off Modality ID=Off, Annotation Override=Off, (Always=N), Minify/Scale=On, Crop=Off, Text Box Relocation=None Print Priority=Normal (Always=N) Border=3.99 (Always=N) Film Base=Blue Film, (Always=N) Film Size=8INx10IN, (Always=N) Film Border=3.99, (Always=N)
	8610 Setup on CONFIGURATION Menu:
	Verify software version: Imager=2.3, Contrast=6.P.1, Conc. Kernel=M.1.0
	on 8610 Operator Menu into Configure User set: Density=16, Contrast=6, Sharp/Smooth=1, Film Layout: 1:1P, Gamma=Xmittance, Image Size=Scale To Fit, Detector Size=do not care
	on 8610 Service Menu into Configure set: Ratio=1.00, Serial Control Intf.=1200, 8,1,Even,Comma,3M, Memory=127, Digital interface: Parity=Even, Modality Group=1, Smoothing Group=1

Error / Warning Messages

No errors or warnings have been tested.

Image quality and optical density

Film type

- Released film type: DVM

Real size scaling

N/A

Fuji Drypix 7000 / 5000

General information

Block diagram

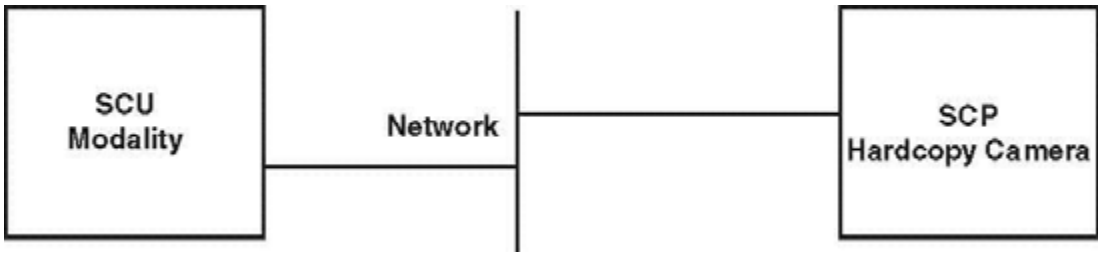


Fig. 7:

Available film sizes

Application		Status	Film type	Medium type
14" x 17"	Portrait	No[1]	No[1]	No[1]
	Landscape	No[1]	No[1]	No[1]
14" x 14"	Portrait	N/A	N/A	N/A
	Landscape	N/A	N/A	N/A
11" x 14"	Portrait	Yes	DI-HL	Blue-based
	Landscape	Yes	DI-HL	Blue-based
10" x 12"	Portrait	N/A	N/A	N/A
	Landscape	N/A	N/A	N/A
8" x 10"	Portrait	Yes	DI-HL	Blue-based
	Landscape	Yes	DI-HL	Blue-based
Other		N/A	N/A	N/A

1. Film size (format) is available but not released

Performance and Connection

Associations

Maximum number of associations supported: 10

Performance

A film job, from when the GO button is pressed until the film is taken out, takes the following time: The optimum connection (point to point) was used.

Time	Around 70 sec (for 14” x 17” in standard mode)

Restrictions

NOTE **For HCC-independent restrictions, refer to (Restrictions and known effects / p. 6).**

NOTE **Standard EN55011, radiated emission, is only supported as class A (hospital use).**

NOTE **Landscape orientation is not supported for film size 14" x 14".**

SCU/modality software configuration

Application entity Properties	Display	Changes allowed
AE title	DRY7000HR	Yes
Port number	104	No

HC device/ general settings		Display	Changes allowed
Type		DICOM printer	No
Class (Printer spec. file name)		fujidrypix7000HiRes	No
DICOM node		dry7000hr	Yes

Filming properties		Display	Changes allowed
Hold printed film jobs		10	Yes
Min. density		20	Yes
Pixel size [1/1000 mm]		50.0 x 50.0	No

Filming properties		Display	Changes allowed
Film sheet formats, Portrait	Number of pixels [columns x rows]	11" x 14" 5075 x 7043 8" x 10" 3907 x 4819	In “define new” Do not modify/add Select only Delete only
Film sheet formats, Landscape	Number of pixels [columns x rows]	11" x 14" 7199 x 4919 8" x 10" 4931 x 3795	
Medium type		Blue film	Yes
Film destination		Processor	No
Color appearance		Grayscale 12 bit	No
Background		Black	Yes
Transformation		No magnification	No

NOTE

Do not modify and/or add film sizes.

Do not modify pixel sizes.

Delete film sizes that are not available at the customer site.

SCP/hardcopy camera configuration (provided by OEM)

Identification

Manufacturer/device type:	DICOM print server (SCP)
Device name:	Drypix 7000
Manufacturer:	FUJI
SW revision:	A04
Physical type:	Ethernet, 10/100 base T/Tx, RJ45
Network protocol:	TCP/IP
DICOM conformance statement:	November 2002, 1st edition.
Image memory:	512 MB RAM (standard)
Hard disk:	20 GB
Number of inputs:	1 network

Manufacturer/device type:	DICOM print server (SCP)
Number of outputs:	N/A
Number of operating panels:	1 built-in operating panel

Printer settings

File name	Content	Remarks
Not available	**Protocol:**	For client: AWS2
	0107H warning	Indicate
	0116H warning	Indicate
	B604H warning	Indicate
	N-event report RQ	Disabled
	Use extension format	No
	Change film	272: 0110H[F]
	Use system timeout	Yes
	Presentation LUT	No
	Use max./min. density	Modality
	Magnify:	
	Procedure	A-VR
	Default smoothing type	SHARP
	Adjustment param. SHARP	
	Edge detection	On
	Detection level	600
	Sharpness	130
	Char. mode	White
	Adjustment param. MEDIUM	
	Edge detection	On
	Detection level	600
	Sharpness	80
	Char. mode	White
	Adjustment param. SMOOTH	
	Edge detection	On
	Detection level	800

File name	Content	Remarks
	Sharpness	30
	Char. mode	White
	LUT:	
	Procedure	SAR
	Default LUT	1
	Adjustment parameters	
	LUT	
	r table number	39
	Max. density	360
	Min. density	17
	Number of tuning points	2
	Tuning point 1	Density 120/shift +3
	Tuning point 2	Density 240/shift +1
	Tuning point 3	
	Tuning point 4	
	Tuning point 5	
	Dmax 3.6	Standard
	Output format:	
	Border density	300
	Polarity [pos./neg.]	Normal [pos.]
	Trim density	0
	Trim	Off
	Margin between images	20
	Image layout	Concentration
	Film size	10IN X 14IN
	Medium Type	Blue
	Film orientation	Portrait
	Mirror	Off

Error/warning messages

No errors or warnings have been tested.

Image quality and optical density

No specific parameter available.

Real size scaling

N/A

Fuji FM DPL/FN-PS551

General information

Block diagram

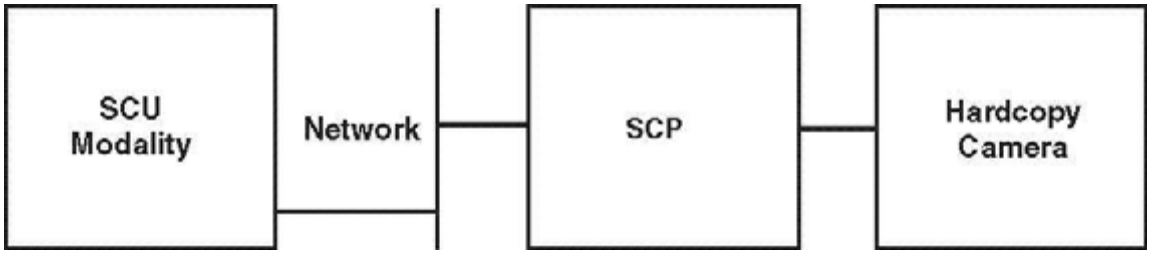


Fig. 8:

Available film sizes

Application		Status	Film type	Medium type
14" x 17"	Portrait	No[1]	No[1]	No[1]
	Landscape	No[1]	No[1]	No[1]
14" x 14"	Portrait	N/A	N/A	N/A
	Landscape	N/A	N/A	N/A
11" x 14"	Portrait	Yes	DI-AL	Blue-based
	Landscape	Yes	DI-AL	Blue-based
8" x 10"	Portrait	Yes	DI-AL	Blue-based
	Landscape	Yes	DI-AL	Blue-based
Other		N/A	N/A	N/A

1. Film size is available but not released

Performance and Connection

Associations

Maximum number of associations supported: 6

Performance

A film job, from when the GO button is pressed until the film is taken out, takes the following time: The optimum connection (point to point) was used.

Time	N/A

Restrictions

NOTE **For HCC-independent restrictions, refer to (Restrictions and known effects / p. 6).**

NOTE **The EN55011 standard is Class A only(Hospital use).**

NOTE **Additional labeling and trim have been switched off.**

NOTE **Only one camera connection to FN-PS551 was used for the qualification.**

NOTE **In a multi-modality environment, one additional hardware channel (also a second print server PS551) must be installed for mammography modalities on the printer side.**

SCU/modality software configuration

Application entity Properties	Display	Changes allowed
AE title	FMDPLHR	Yes
Port number	104	No

HC device/ general settings		Display	Changes allowed
Type		DICOM printer	No
Class (Printer spec. file name)		fujifmdpHiResl	No
DICOM node		FMDPLhr	Yes

Filming properties		Display	Changes allowed
Hold printed film jobs		10	Yes
Min. density		20	Yes
Pixel size [1/1000 mm]		50 x 50	No

Filming properties		Display	Changes allowed
Film sheet formats, Portrait	Number of pixels [columns x rows]	11" x 14" 5000 x 7000 8" x 10" 3904 x 4819	In “define new” Do not modify/add Select only Delete only
Film sheet formats, Landscape	Number of pixels [columns x rows]	11" x 14" 7120 x 4880 8" x 10" 4928 x 3795	
Medium type		Blue film	Yes
Film destination		Processor	No
Color appearance		Grayscale 12 bit	No
Background		Black	Yes
Transformation		No magnification	No

NOTE

Do not modify and/or add film sizes.

Do not modify pixel sizes.

Delete film sizes that are not available at the customer site.

SCP/hardcopy camera configuration (provided by OEM)

Identification

Device type:	DICOM print server/printer
Device name:	**FN-PS551**
Manufacturer:	FUJI photo film
SW revision:	**A 06**
Physical interface:	Ethernet 10/100 base T/TX, RJ45
Network protocol:	TCP/IP
DICOM conformance statement:	FN-PS551 May 2001, 4th edition
Image memory:	6 GB (256 MB main memory)
Hard disk:	6.4 GB
Number of inputs:	1 network, RJ45

Number of outputs:	1
Number of operating panels:	1 PC keyboard

Device type:	**DICOM camera**
Device name:	**FM - DPL**
Manufacturer:	FUJI photo film
SW revision:	**W01-02 (main unit) panel: Unit W00-00**
Physical interface:	None
Network protocol:	None
DICOM conformance statement:	None
Image memory:	48 MB-RAM
Hard disk:	None
Number of inputs:	3
Number of outputs:	N/A
Number of operating panels:	1 built-in keypad

Printer settings

Film size	26 X 36
Image type:	**Enable fine scan**
Gradation type:	Select: 3.6

File name	Content	Remarks
None	**FUJI service utility setting**	**Provided by FUJI**
	Function	Properties
	Protocols: DICOM	Network port no. = 104
		Data transfer time-out = 600 sec.
		Print server application entity = one for each printer
		Data receive if the printer is offline = enable
	Protocols:	**DICOM Properties**
	Network port no	104
	data transfer timeout	600 sec.

File name	Content	Remarks
None	**FUJI service utility setting**	**Provided by FUJI**
	Print Server Application Entity	one to each printer
	Data receive if the printer is off-line	Enable
	Printer:	**FMDPL Properties**
	Name:	AE title of DICOM = FMDPL
		Fine printing = FMDPLHR
	Interface:	Interface = E-i/f
		Pixel clock = 1.0 µsec/pixel
		Version = Type 1
		Film size = 14 x 17
		Film medium = Blue
	Model:	Model = FN-PS551
		Manufacturer = FUJI PHOTO FILM CO, LTD
	Clients:	**DICOM Properties**
	Name:	Host name = AWS2
		IP address = (from system administrator)
	Protocol:	Protocol = DICOM
		Application entity title = AWS2
		Attribute list error (0107H warning) = indicate
		Attribute value out of range (0116H warning) = indicate
		Image size larger than image box (B604H warning) = indicate
		N-event report RQ = Disabled
		Use presentation LUT = No
		Data transfer time-out = enabled
		Use extension format = No

File name	Content	Remarks
None	**FUJI service utility setting**	**Provided by FUJI**
	Magnify:	Procedure = A-VR
		Smoothing type = SHARP
		Adj. parameter = SHARP
		Edge detection = Off
		Detection level = 600
		Sharpness = 130
		Character color = White
	LUT:	Procedure = SAR
		Default LUT = 1 (linear)
		Adj. parameter LUT = 1
		r table no. = 39
		Max. density = 300
		Min. density = 20
		Number of tuning points = 2
		Tuning point 2, density = 75, shift = 2, contrast = 100
		Tuning point 2, density = 275, shift = -5, contrast = 100
	Printer:	Fixed, FMDPL
	Output format 1:	Border density = 300
		Polarity = Normal (pos.)
		Trim density = 300
		Trim = Off
		Trim width = 1 pixel
		Number of copies = 1
		Film size = 14 x 17
		Medium type = Blue
		Film orientation = Portrait
		Mirror = Off (normal)
		Overlay threshold density = 120

File name	Content	Remarks
None	**FUJI service utility setting**	**Provided by FUJI**
	Output format 2:	Margin between images = 20 pixels
		Image layout = Concentration
	Annotation: Print server	Upper left = (nothing selected)
		Upper center = (nothing selected)
		Upper right = (nothing selected)
		Upper left = (nothing selected)
		Lower center = (nothing selected)
		Lower right = (nothing selected)
	Logging:	Network = (No)
		Printer = (No)
		DICOM = Normal
		Output image to file = Off
		Precedence = Input
	Sorting:	Sorting conditions = (nothing selected)
2 FN-PS 551 (each with a separate channel) can be connected to FM-DPL. Only one printer connection is used for the test.		

Error/warning messages

No errors or warnings have been tested.

Image quality and optical density

No specific parameter available.

Real size scaling

N/A